

A Comparative Evaluation of Three Digital Libraries

With the objective of identifying features and techniques for a proposed digital library, this paper describes a comparative evaluation of three extant digital libraries: *Chopin Early Editions*, administered by the University of Chicago Library (<http://chopin.lib.uchicago.edu>); *Fonds Histoire de l'Education*, managed by the Education School at the University of Limoges (<http://www.unilim.fr/histoire-education>); and *A Shoebox of Norwegian Letters*, a personal project created by Konrad M. Lawson (<http://huginn.net/shoebox>). The *Chopin* library was created with the Greenstone digital library management system (DLMS); the other two were built using the Omeka DLMS.

Methodology

The evaluation focused on four areas: users, content, interface, and system. Those evaluation objects are based on Saracevic's six levels of evaluation, as refined by Zhang: user, content, interface, technology, service, and context (Saracevic, 2000; Zhang, 2010). For this exercise, the term "system" replaces "technology" and refers to the DLMS powering the digital library. In addition, the evaluation object "interface" here incorporates an aspect of "service"—i.e., the existence of online help or documentation—and an aspect of "context," particularly the opportunity for collaboration or interaction. (According to Zhang, collaboration is a core criterion at the context level of evaluation [2010, p. 102].)

The evaluation process consisted of individual exploration of each digital library, with the goal of formulating qualitative responses to one or more research questions. These research questions addressed core criteria identified by Zhang for each of the four evaluation objects (2010, p. 101):

- Users: efficiency, satisfaction, successfulness
- Content: usefulness, accuracy, accessibility
- Interface: consistency, ease of use, effectiveness
- Technology: reliability, ease of use

The research questions also incorporated Nielsen's quality components of usability, particularly the notions of learnability, efficiency, and satisfaction (Nielsen, 2012).

Evaluation Results

I. Evaluation Object: Users

Research question: Considering the potential users, how would this digital library be an efficient or satisfying way to meet their goals?

Chopin Early Editions. The homepage (Figure 1) of this digital library identifies scholars as potential users, particularly those wishing to examine or compare early printings of musical compositions by Frédéric Chopin (University of Chicago Library, 2004). Besides scholars, other potential users include musicians interested in Chopin and librarians or archivists responsible for collections of music. For users with differing information needs, the ability to access the collection in different ways (e.g., through browsing or searching) promotes satisfaction. Also satisfying for any user is the ability to view a high-quality image of an entire original score, page by page. As for efficiency, the alphabetical lists of titles and uniform titles are quick means of discerning the scope of the collection. However, for scholars wanting to compare scores, the digital library is an inefficient tool, as it is impossible to view more than one score at a time. Nonetheless, the tool might help users to narrow down the scores they wish to compare before requesting copies through the Ordering Reproductions page, accessible from the homepage.

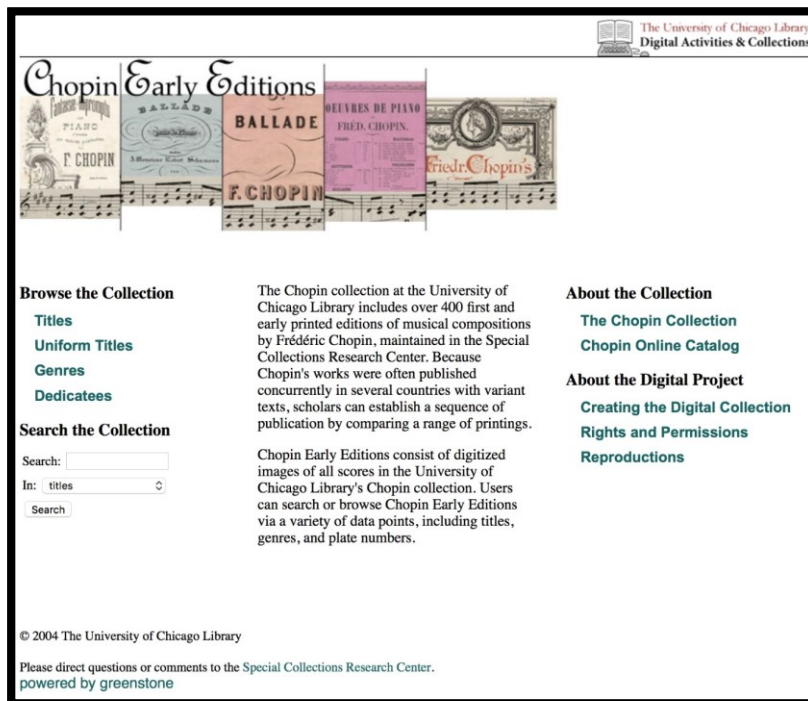


Figure 1. The homepage of Chopin Early Editions (<http://chopin.lib.uchicago.edu/home.html>).

Fonds Histoire de l'Education. Potential users of this "History of Education Collection" include scholars of the history of education in France, as well as general users interested in French cultural heritage. As with *Chopin Early Editions*, this digital library can satisfy users wishing to browse materials in either of the two collections (teacher materials and student materials) as well as those searching for particular content. For researchers looking to explore certain topics, this library offers an efficient means of browsing: the *Parcourir par mot-clé* ("Browse by keyword") option shows users the number of items tagged with a particular keyword (Figure 2). The *Parcourir la carte* ("Browse the map") feature could assist users interested in certain regions, but its execution is unsatisfying, as most of the materials in the collection are from the Limoges region (Figure 3). Another source of dissatisfaction for users might be the inability to compare teacher notebooks (e.g., lesson plans) with student notebooks from the same period, as the student notebook collection is significantly larger than the teacher collection.



Figure 2. In the Histoire de l'Education digital library (<http://www.unilim.fr/histoire-education>), the browsing by keyword option shows the number of items associated with each tag.



Figure 3. The Browse the Map feature is limited by the shared location (Limoges) of many items in the Histoire collection.

A Shoebox of Norwegian Letters. This digital library identifies its users as "historians, researchers, students, and interested visitors who wish to explore the lives and society surrounding a family of Norwegians and Norwegian-Americans" (K. M. Lawson, 2011). It also could serve as an exemplar to genealogists and archivists working with personal correspondence. The site facilitates efficient research through its clear identification of people and places mentioned in the collection, as well as by its exhaustive list of topics covered (noted via tags). The narrow scope of the collection might dissatisfy some researchers, however.

II. Evaluation Object: Content

Research questions:

- Considering the purpose and scope of the collection, how useful is the content?
- Is the metadata accurate and complete?
- Is the content accessible to people of all abilities?

Chopin Early Editions. Usefulness. One purpose of this digital library is to expand access to the University of Chicago Library's physical collection of early Chopin scores. According to the homepage, the digital library comprises digitized images of everything in the physical collection (i.e., "over 400" scores); therefore, its usefulness is not limited by an incomplete representation of the library's holdings (University of Chicago Library, 2004). Indeed, only one score in the collection is marked "not yet available." The quality of the images also determines their usefulness. On the display pages for each score, the images are clear enough for the music to be read. Moreover, beneath each image, a link to a higher quality image allows the viewer to home in on the smallest notations (see Figure 4).

The screenshot displays the 'Chopin Early Editions' digital library interface. At the top, there is a navigation bar with links for 'search', 'titles', 'uniform titles', 'genres', and 'dedicatees'. A 'HELP' link and 'PREFERENCES' are also visible. Below the navigation bar, the text 'Douze études pour le piano, oeuvre 25' is shown. A 'view score' button and a 'bibliographic description' link are present. The main content area shows 'Page 16: Etude' with a 'Go' button. The musical score for 'ÉTUDE XI.' is displayed, featuring a ruler on the left side. The score includes the tempo 'Lento.' and the dynamic 'p'. Below the score, a link 'view higher quality image' is visible. Navigation buttons 'prev' and 'next' are located at the bottom of the interface.

Figure 4. In the Chopin library, users can view pages of a score sequentially or select a specific page to view. A link beneath each page opens a higher quality image.

Metadata. On each item's display page, a tab labeled "Bibliographic Description" lists metadata for each score, including uniform title, title variants, composer, publication information, description (number of pages and size), notes, subjects, plate number, URI, and call number (Library of Congress Classification). Overall, the metadata appears thorough and accurately assigned to elements. However, the repetition of some element labels unnecessarily clutters the page. For example, if more than one value exists for an element, such as title or plate number, a label precedes each value (see Figure 5). Moreover, the lack of any information about rights diminishes the completeness of the metadata. (The Rights and Permissions page, accessible from the homepage, provides copyright information about the collection as a whole.)

The University of Chicago LIBRARY

Chopin Early Editions

HELP PREFERENCES

search titles uniform titles genres dedicatees

1er. concerto pour le piano avec accompagnement d'orchestre, op. 11

view score bibliographic description

UniformTitle: Concertos, piano, orchestra, no. 1, op. 11, E minor
Title: 1er. concerto pour le piano avec accompagnement d'orchestre, op. 11
Title: Premier concerto pour le piano avec accompagnement d'orchestra, op. 11
Composer: Chopin, Frédéric 1810-1849
Dedicatee: Kalkbrenner, Friedrich
Publication Info.: Paris (Rue Richelieu, No. 97) : Chez Maurice Schlesinger, Md. de musique, editeur des œuvres de Mozart, Rossini, etc., [not before 1846]
Description: 44 p. of music ; 32 cm.
Notes: Solo piano part; with reduction of orchestra introductions and interludes.
 "Dédié à Monsieur F. Kalkbrenner."
 Original Schlesinger ed. pub. 1833.
 Engraved. Price: 12 f.
Subjects: Concertos (Piano) -- Parts (solo)
Plate No.: M.S. 1409 Maurice Schlesinger
Plate No.: 1409 Maurice Schlesinger
URI: <http://pi.lib.uchicago.edu/1001/dig/chopin/320>
Call No.: M237 C54 C6942 c1

Figure 5. In the Chopin digital library, element labels such as "Title" and "Plate No." are repeated when an item has multiple values for that element.

Accessibility. The Preferences page allows the user to change the interface language, the character encoding, and the format (graphical or textual). The first two options facilitate navigation for speakers of languages other than English. The last option assists users with

diminished sight who may employ screen-reading software. However, the scanned images are the only means of accessing the scores. The addition of audio files or searchable versions, perhaps created through optical music recognition software, would enhance accessibility (Hajic, 2018), but such enhancements would require significant additional resources.

Fonds Histoire de l'Education. Usefulness. As with *Chopin Early Editions*, the *Histoire de l'Education* digital library expands access to a physical archive of 20,000 education-related documents held by the University of Limoges, France. The homepage argues that the student notebooks are particularly useful as primary sources "because they show the actual work of pupils in a given class as well as teachers' corrections" (Université de Limoges, n.d.-a). The high quality of the scanned documents and the ability to download PDF copies also enhance the efficacy of the collections. However, the limited number of time periods and regions represented, along with the fact that only 100 of the 20,000 documents in the physical archive have been included, might diminish the overall usefulness of the digital library.

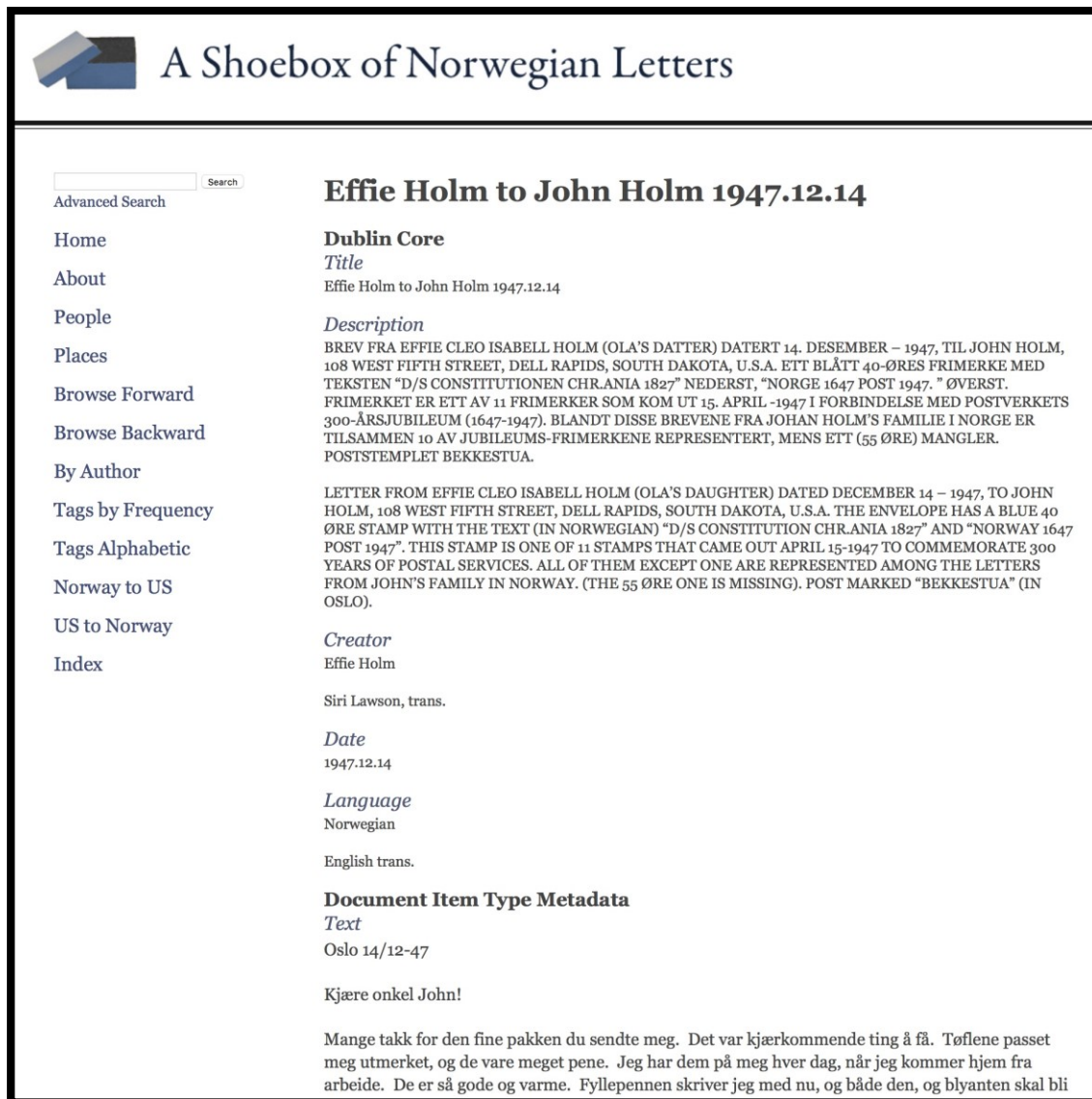
Metadata. Robust metadata is displayed beneath the image of each item. Several of the element values—e.g., author, teacher, school year, school, and keywords (tags)—are links that point to other items sharing that value. Rights information, a map showing the item's origin, and a sample citation augment the completeness of the metadata (see Figure 6).

Accessibility. In the site's header, a menu labeled "Accessibilité" offers a link to a policy that describes efforts made to promote accessibility but admits that "much work remains to be done" (Université de Limoges, n.d.-b). Other links in the accessibility menu cause the cursor to jump to the main content or first field on a page. It is uncertain how useful to people with visual disabilities these options—or the untranscribed content, for that matter—might be. The site also lacks the option of a less graphical, more textual display.

A Shoebox of Norwegian Letters. Usefulness. As seen with the other evaluated digital libraries, the unrestricted online access to the contents of this library broadens its potential usefulness. Prior to the creation of the *Shoebox* digital library, its 248 "letters, cards, songs, poems, and other documents" resided, unsorted and untranslated, in a physical shoebox (K. M. Lawson, 2011). One drawback to the collection, however, is that no images of the original documents were created, so it is impossible to verify the accuracy of the transcriptions.

Metadata. For each *Shoebox* document, a single, long page displays metadata, the original Norwegian text, and the English translation (see Figure 7). Metadata elements are few in number—title, description, creator, date, language—but the information appears accurate and complete, apart from missing rights information. The link to a PDF file at the end of the page may be misleading; it opens a document containing the letter's description and text, in both languages, not an image of the original letter.

Accessibility. This site does not acknowledge accessibility issues. However, the text-based display would likely pose few problems for screen-reading software. The black-and-white design is friendly to users affected by color vision deficiency.



The screenshot shows a web page titled "A Shoebox of Norwegian Letters". On the left is a navigation menu with links: Home, About, People, Places, Browse Forward, Browse Backward, By Author, Tags by Frequency, Tags Alphabetic, Norway to US, US to Norway, and Index. At the top left of the main content area is a search bar with the text "Advanced Search" and a "Search" button. The main content area displays the title "Effie Holm to John Holm 1947.12.14". Below the title is the "Dublin Core" section with fields for Title, Description, Creator, Date, Language, and Document Item Type Metadata. The Title field contains "Effie Holm to John Holm 1947.12.14". The Description field contains a detailed description of the letter in Norwegian and English. The Creator field contains "Effie Holm". The Date field contains "1947.12.14". The Language field contains "Norwegian" and "English trans.". The Document Item Type Metadata field contains "Text" and "Oslo 14/12-47". Below the metadata is the text of the letter in Norwegian, followed by its English translation.

A Shoebox of Norwegian Letters

Advanced Search Search

Home
About
People
Places
Browse Forward
Browse Backward
By Author
Tags by Frequency
Tags Alphabetic
Norway to US
US to Norway
Index

Effie Holm to John Holm 1947.12.14

Dublin Core

Title
Effie Holm to John Holm 1947.12.14

Description
BREV FRA EFFIE CLEO ISABELL HOLM (OLA'S DATTER) DATERT 14. DESEMBER – 1947, TIL JOHN HOLM, 108 WEST FIFTH STREET, DELL RAPIDS, SOUTH DAKOTA, U.S.A. ETT BLÅTT 40-ØRES FRIMERKE MED TEKSTEN "D/S CONSTITUTIONEN CHR.ANIA 1827" NEDERST, "NORGE 1647 POST 1947." ØVERST. FRIMERKET ER ETT AV 11 FRIMERKER SOM KOM UT 15. APRIL -1947 I FORBINDELSE MED POSTVERKET'S 300-ÅRSJUBILEUM (1647-1947). BLANDT DISSE BREVE FRA JOHAN HOLM'S FAMILIE I NORGE ER TILSAMMEN 10 AV JUBILEUMS-FRIMERKENE REPRESENTERT, MENS ETT (55 ØRE) MANGLER. POSTSTEMPLET BEKKESTUA.

LETTER FROM EFFIE CLEO ISABELL HOLM (OLA'S DAUGHTER) DATED DECEMBER 14 – 1947, TO JOHN HOLM, 108 WEST FIFTH STREET, DELL RAPIDS, SOUTH DAKOTA, U.S.A. THE ENVELOPE HAS A BLUE 40 ØRE STAMP WITH THE TEXT (IN NORWEGIAN) "D/S CONSTITUTION CHR.ANIA 1827" AND "NORWAY 1647 POST 1947". THIS STAMP IS ONE OF 11 STAMPS THAT CAME OUT APRIL 15-1947 TO COMMEMORATE 300 YEARS OF POSTAL SERVICES. ALL OF THEM EXCEPT ONE ARE REPRESENTED AMONG THE LETTERS FROM JOHN'S FAMILY IN NORWAY. (THE 55 ØRE ONE IS MISSING). POST MARKED "BEKKESTUA" (IN OSLO).

Creator
Effie Holm

Siri Lawson, trans.

Date
1947.12.14

Language
Norwegian
English trans.

Document Item Type Metadata

Text
Oslo 14/12-47

Kjære onkel John!

Mange takk for den fine pakken du sendte meg. Det var kjækkommende ting å få. Tøflene passet meg utmerket, og de vare meget pene. Jeg har dem på meg hver dag, når jeg kommer hjem fra arbejde. De er så gode og varme. Fyllepennen skriver jeg med nu, og både den, og blyanten skal bli

Figure 7. One long page displays metadata and text for items in the Shoebox digital library (<http://huginn.net/shoebox>).

III. Evaluation Object: Interface

Research questions:

- Is the homepage consistent with the design of other digital libraries? Is it memorable?
- Are browsing and searching features easy to use, learnable, and effective?
- Is the display of items consistent with other digital libraries? Is it effective?
- For new users and less intuitive features, do help pages facilitate learnability?
- Are there opportunities for collaboration or user interaction with the collection?

Chopin Early Editions. Homepage. The homepage of this digital library has a utilitarian design. It provides the essential information: links to browsing pages, a search box, a descriptive overview of the library, and links to pages about the collection and project. The lack of any featured content, however, conceals the richness of the collection and may detract from memorability.

Browsing. Browsing options are easily accessible from the homepage and from a menu bar at the top of each results list. The clear labels for each browsing option—Titles, Uniform Titles, Genres, and Dedicatees—effectively illustrate the way each one organizes the collection. If a user were not certain of the meaning of one of the labels, the hierarchical display of items, with the total items shown after each top-level category, promotes learnability (see Figure 8).

Searching. The search feature is easy to learn; like other digital libraries, it allows searching within a specified metadata field or by keyword, as well as by any or all of the search terms. However, it does not allow for variant spellings, such as singular or plural forms, or diacritical marks. For example, a search for "etude" returns zero results, "études" returns seven, and "etudes" returns seventeen. Another possible source of confusion is that the user can search by opus number, but that number is not indicated in a metadata element; it seems to appear in the title only.

Display. The item display is consistent with other digital libraries, in that both the representation of the item and its metadata are shown together. The versatility of viewing options enhances the effectiveness of the display: users can advance through each page of the score or select a particular page from a list (see Figure 4).

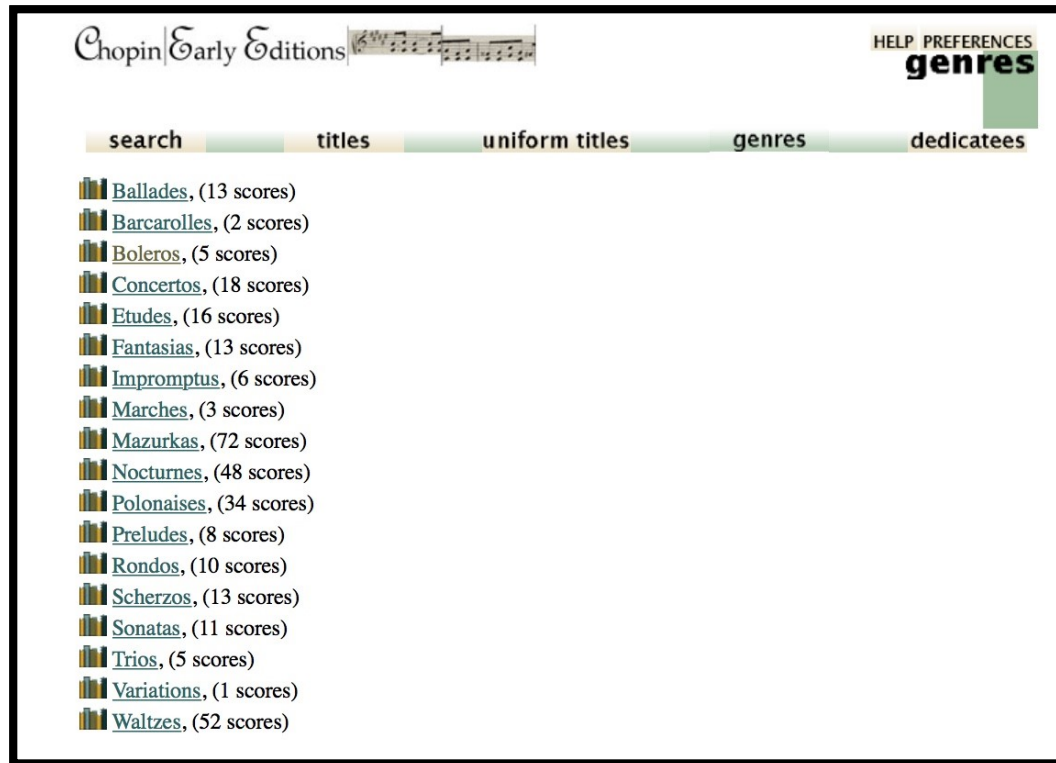


Figure 8. Chopin Early Editions' browsing lists show the total items for each category, such as genre.

Documentation. A link to the Help page is easily accessible from every page in the library. The contents are thorough but not overwhelming, and a linked table of contents at the top allows users to jump to relevant topics. However, one section, "How to read the documents," was not edited properly, as it applies to textual documents, not musical scores.

Interactivity. The interface does not permit any interaction with the collection. For instance, there are no options for commenting or tagging, and users cannot flag or save items to a list.

Fonds Histoire de l'Education. Homepage. The dynamic, visually rich design of this digital library's welcome page is consistent with that of other contemporary digital libraries ("Digital Public Library of America," 2018; "Europeana Collections," 2018; "Library of Congress," 2018). A horizontal menu of links points to the collections, the complete list of contents, and several *A propos* ("About") pages. The banner image of cheerful children, the gallery of featured content, and examples of recently added items provide a feel for the library's collections and promote memorability (see Figure 9).

Accessibilité - Q Université de Limoges

Université de Limoges espe École supérieure du professorat et de l'éducation Académie de Limoges

f t in yu

Accueil Collections Contenus Carte A propos -

Fonds Histoire de l'Éducation

Collections

Cahiers d'élèves

Cette collection est la plus importante quantitativement. Elle rassemble de nombreux types de cahiers comme les cahiers d'honneur, les cahiers de contrôle ou de composition, les cahiers de brouillon, les cahiers de roulement, les cahiers de devoirs mensuels, les cahiers de devoirs journaliers autrement appelés cahiers du jour, les cahiers disciplinaires (correspondant à un seul domaine d'enseignement). Ont aussi été intégrés les cahiers de travaux collectifs ou documentaires qui sont l'œuvre, sur un thème donné, de plusieurs élèves.

Tous ces cahiers sont extrêmement utiles car ils donnent à voir le travail effectif des élèves dans une classe donnée ainsi que l'évaluation mise en place par les enseignant.e.s.

Cahiers d'enseignant.e.s

Cette collection regroupe tous les cahiers qui ont été la propriété d'enseignant.e.s. C'est dans cette collection que sont intégrés les cahiers de préparation et les cahiers-journal des enseignant.e.s. Ce sont d'importants outils des professeur.e.s. Ils/elles y consignent le déroulé de la journée de travail à l'école et leurs préparations pédagogiques avec quelquefois des éléments de réflexion d'ordre didactique et épistémologique.

► Présentation du fonds « Histoire de l'éducation »

Contenus ajoutés récemment

	[Cahier 0100] Devoirs Mensuels 1933-1934 CE1		[Cahier 0099] Devoirs Mensuels 1933-1934 CE1		[Cahier 0098] Devoirs Mensuels 1933-1934 CE1
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Figure 9. The Fonds Histoire de l'Éducation welcome page includes links to the collections, a gallery of featured content, and recently added items.

Browsing. The *Histoire* digital library offers several browsing options, including the keyword and map features mentioned in the Users section. These options are not evident on the homepage, however. From the *Contenus* ("Contents") or *Collections* pages, choosing *Tout parcourir* ("Browse all") displays a list of all items, which a user can advance through or sort by

title, school year, or date added. It might be more effective to highlight some of these browsing options on the welcome page or main collection page.

Searching. The search feature is not immediately apparent: the site header includes a tiny search icon that reveals a search box when clicked. The advanced search page permits searching by a full list of Dublin Core and other metadata elements, but the large size of the list makes it difficult to use. Moreover, it is unclear whether most of the elements in the list have been applied to items in the library. Finally, the fact that the text within the notebooks is not fully transcribed limits the effectiveness of searching.

Display. As with *Chopin Early Editions*, the item display is consistent with other digital libraries. Features that allow users to advance through pages, view a larger image, and skip to the previous or next item contribute to the effectiveness of the display. Again, adding full-text transcriptions of the notebooks would render handwritten text legible and searchable, thereby increasing usefulness, but this task would require significant resources.

Documentation. Labels and descriptive text throughout the digital library provide some guidance to novice users, but a dedicated help page does not exist. The *Informations techniques* ("Technical information") page constitutes a sort of documentation: it lists the plugins used.

Interactivity. Users of this digital library can share content via links to social media platforms, which are displayed in the metadata section of each item. However, users are unable to interact with content within the library itself. The tags associated with items may be assigned by site administrators only.

A Shoebox of Norwegian Letters. Homepage. Redundantly, this digital library possesses a homepage and a welcome page. Both of these pages have a minimalist, utilitarian design. The homepage reveals that the last updates to the site were made in 2011. The welcome page provides the more typical homepage information: an overview of the collection, a search box, and links to several browsing pages and an index. The static nature of this page reflects the finite nature of this digital library. However, the "wall of text" and lack of featured content might discourage further exploration.

Browsing. Descriptive labels in the left navigation pane clearly indicate the function of each browsing option—for example, Places, Browse Forward, Browse Backward, By Author, and Tags by Frequency (see Figure 10). Most options are easy to grasp, although some are more effective than others. The Places option, for example, allows users to view places mentioned in

the collection on an interactive map; it also provides links to items associated with that place (see Figure 11). The People page, however, is confusing; its links point to an older database outside the digital library (S. Lawson, 2004).

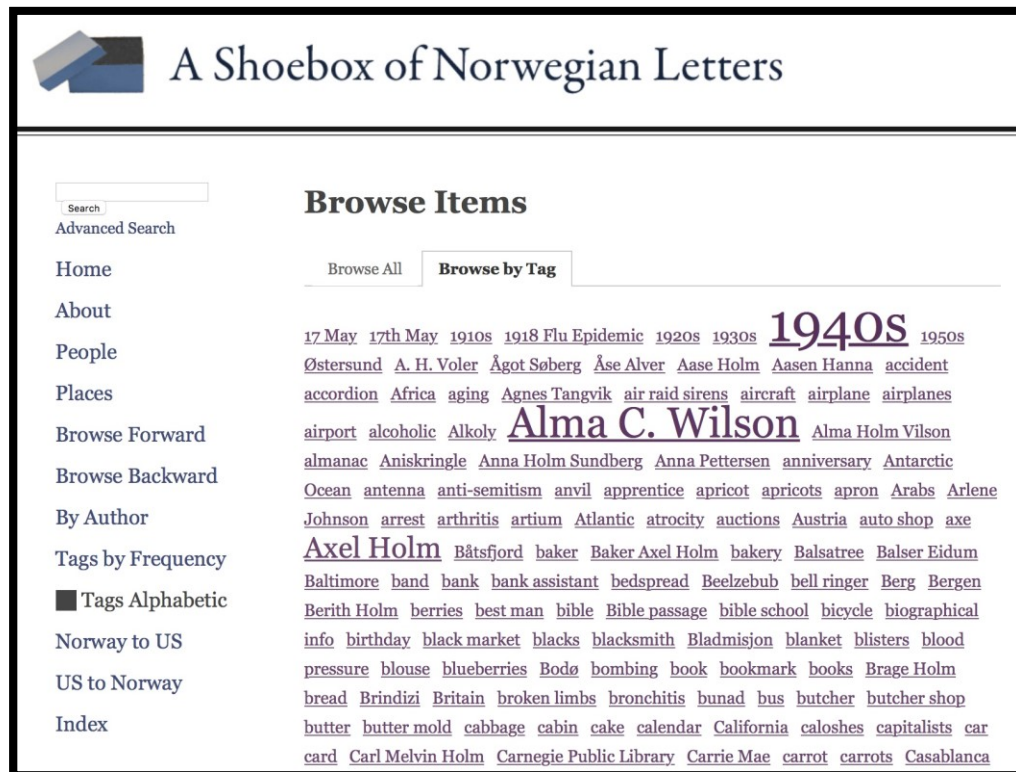


Figure 10. The Shoebox digital library's Browse by Tag feature highlights the most frequently used tags.

Searching. The *Shoebox* search function does not appear to accommodate diacritical marks, as searches for "snø" and "sno" yield zero results. (*Snø*, which means "snow," appears in the text of several letters.) In addition, the display of search results under a "Browsing" heading is confusing and inconsistent with other digital libraries (see Figure 12). As in the *Histoire de l'Education* digital library, the advanced search page features an unwieldy list of Dublin Core and other metadata elements, many of which are not used in this library. The "Search by Type" list is useless as well, as only one type—document—is included in the collection.

Display. As discussed in the Content section, each item in the *Shoebox* library is displayed as text, without an accompanying image of the original document. The absence of images is inconsistent with other digital libraries. However, this style of display enables users to search the full text of documents—a feature lacked by the other evaluated digital libraries.



A Shoebox of Norwegian Letters

[Advanced Search](#)

[Home](#)
[About](#)
[People](#)
■ [Places](#)
[Browse Forward](#)
[Browse Backward](#)
[By Author](#)
[Tags by Frequency](#)
[Tags Alphabetic](#)
[Norway to US](#)
[US to Norway](#)
[Index](#)

[Home](#) > [Places Mentioned in the Shoebox Letters](#)

Places Mentioned in the Shoebox Letters

Below are places mentioned on more than one occasion in the letters. Double-click to zoom in on an area. Click and drag to move the map.



Focus on a single location by clicking on it below:

- [Bergen](#) - Large city on western coast of Norway. ([Items](#))
- [Bodo](#) - Town in northern Norway. ([Items](#))
- [Dell Rapids](#) - Town in South Dakota. ([Items](#))
- [Dunderlandsdalen](#) - A valley near Rana in Nordland county. ([Items](#))
- [Fagernesstoppen](#) - A mountain next to Narvik. ([Items](#))
- [Falstad Concentration Camp](#) - Prison camps during WWII for political prisoners. ([Items](#))
- [Finnmark](#) - County in northeast Norway. ([Items](#))
- [Fornebu](#) - Location of Oslo airport. ([Items](#))
- [Galesburg](#) - Probably referring to the town in North Dakota. ([Items](#))
- [Grini Concentration Camp](#) - The most famous of the WWII prison camps in Norway.

Figure 11. In the Shoebox library, the Places browsing feature includes an interactive map and links to associated items.

Documentation. There is no dedicated help page, but the library's welcome page offers information about the different methods of exploring the contents. The About page provides additional background information, particularly about the use of tags and geocodes.

Interactivity. Unlike the other evaluated digital libraries, the Shoebox site solicits user feedback on each item's page. Users can send corrections or suggestions through the provided form. In addition, the site features a guestbook page where users can post comments.



Figure 12. The Shoebox library confusingly displays search results in a "browsing" list.

IV. Evaluation Object: System

Research questions:

- Is the system reliable?
- Is the system easy to use for building collections, creating and updating metadata, and formatting the display?

Reliability. The University of Chicago Library used Greenstone software to build *Chopin Early Editions*. The University of Limoges and Konrad M. Lawson employed Omeka to create *Fonds Histoire de l'Education* and *A Shoebox of Norwegian Letters*, respectively. Considering the age of the *Chopin* and *Shoebox* digital libraries, it is reasonable to declare both systems reliable.

Ease of use. Building a collection in Greenstone involves copying files into dedicated folders and manually adding or importing metadata. Greenstone's graphical user interface is less intuitive than Omeka's web-based interface, which provides a user-friendly form for adding items (files and metadata) to a library. Changing the display of a Greenstone collection requires manual editing of formatting statements. By contrast, Omeka offers predesigned themes that users can easily apply.

Conclusions

All three evaluated digital libraries promote user satisfaction by providing multiple methods of accessing and viewing content. *Chopin Early Editions'* alphabetized list of scores provides an especially efficient means of gauging the entire contents of the library. Each digital library also offers several browsing options. For users interested in particular topics, the ability to browse by keyword, as in *Fonds Histoire de l'Education* and *A Shoebox of Norwegian Letters*, could be particularly satisfying. Those two libraries also provide a means of browsing geographically, via an interactive map, although this method is less successful for collections with limited geographical variety, such as that of *Histoire de l'Education*. The inability to view more than one object at a time is a limitation of all three digital libraries; however, each offers an option for downloading or ordering copies, which could then be compared outside the interface.

Overall, the content of each digital library is useful, in that it represents a physical collection previously inaccessible to global audiences. The usefulness of the content is enhanced by the high quality of images in the *Chopin* and *Histoire* collections, as well as by the searchable, full-text transcriptions in the *Shoebox* library. Each library's metadata appears accurate and thorough, apart from rights information, which should be a required element for every item. A notably useful feature of the *Histoire* metadata is the linking of values to related items in the collection. Accessibility features are inconsistent among the three libraries, however. *Chopin* is the only one to allow users to change language and display preferences. None provides alternate versions of content, such as plain text or audio files, which should be essential.

Despite some similarities, the interfaces of the libraries differ significantly in many respects. Of the three, only *Histoire* has a dynamic homepage with changing featured content and recently added items. These features, along with the attractive banner image, make it more memorable and consistent with prominent digital libraries. Yet *Histoire* does not effectively display browsing and searching options on the homepage. By contrast, the homepages of *Chopin*

and *Shoebox* feature descriptive browsing labels. All three offer essential advanced search features, although those in *Histoire* and *Shoebox* suffer from cumbersome lists of unused metadata elements. Searching failures in *Shoebox* and *Chopin* also demonstrate the need for the recognition of variant spellings. The ability to perform a full-text search would further enhance the effectiveness of the search function for all three libraries, although this would require transcriptions of PDF or image files. Documentation, such as the thorough help page provided by *Chopin*, would facilitate use for each digital library. As for item display, the options offered by *Chopin* and *Histoire* for advancing through pages and viewing larger images are effective and easy to use, while the lack of images in *Shoebox* may be its greatest shortcoming. All three libraries would benefit from enhanced interactivity, such as the ability to comment, tag, or save items to a list.

Finally, with regard to the choice of a DLMS, reliability does not appear to be a determining factor. Nevertheless, advanced users might find one of the systems to be more flexible or more suited to their needs. For novice digital librarians, though, Omeka beats Greenstone in ease of use.

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